RoadMap
Invasive Species

EARTH SCIENCE RESEARCH   **DECISION SUPPORT INPUTS**   **GOALS**

Enhanced Decision Support

State 2 Enhanced Invasive Species DSS (ISFS)

Soil Surface Moisture Measurements products (HYDROS)

Invasive species spread as a function of soil fertility & veg. processes

Next Global land cover & change products

Capability to assess & predict patterns of species invasion & biodiversity for different land uses

Global Atmospheric CO_2 from OCO and other sources

Capability to link biotic potential & diversity to carbon storage & flux

Forest height, perimeter & canopy volume sampled globally. First global land cover change data product

Capability for assessment of complex structural habitats (3-D vs former 2-D capability)
Capability for terrestrial & aquatic prediction

N. American Carbon Program & related international results incorporated into models (w/ C, climate) & ecosystem data assimilation. Canopy structure from LIDAR

Continental assessments of native & exotic plant diversity Probable locations of rare habitats & potential areas for future invasion

Exploratory studies to map biological resources using existing satellite sensors; coupled atmospheric-terrestrial models

Regional assessments of native & exotic plant diversity
Capability to discriminate between potential "hot spots" of native & exotic plant diversity

EOS & global land cover observations; Carbon & climate model assimilation

Baseline information & dynamics of major terrestrial plant invasives

State 1 Prototype Invasive Species DSS (ISFS)

An operational National Invasive Species Forecasting System for early detection & monitoring of biological invasions

EARTH OBSERVING MISSIONS

TRMM   Landsat 5, 7   Terra   Aqua   NPP   OCO   Aquarius   GPM   HYDROS   NPOESS

2003   2005   2007   2009   2011   2013

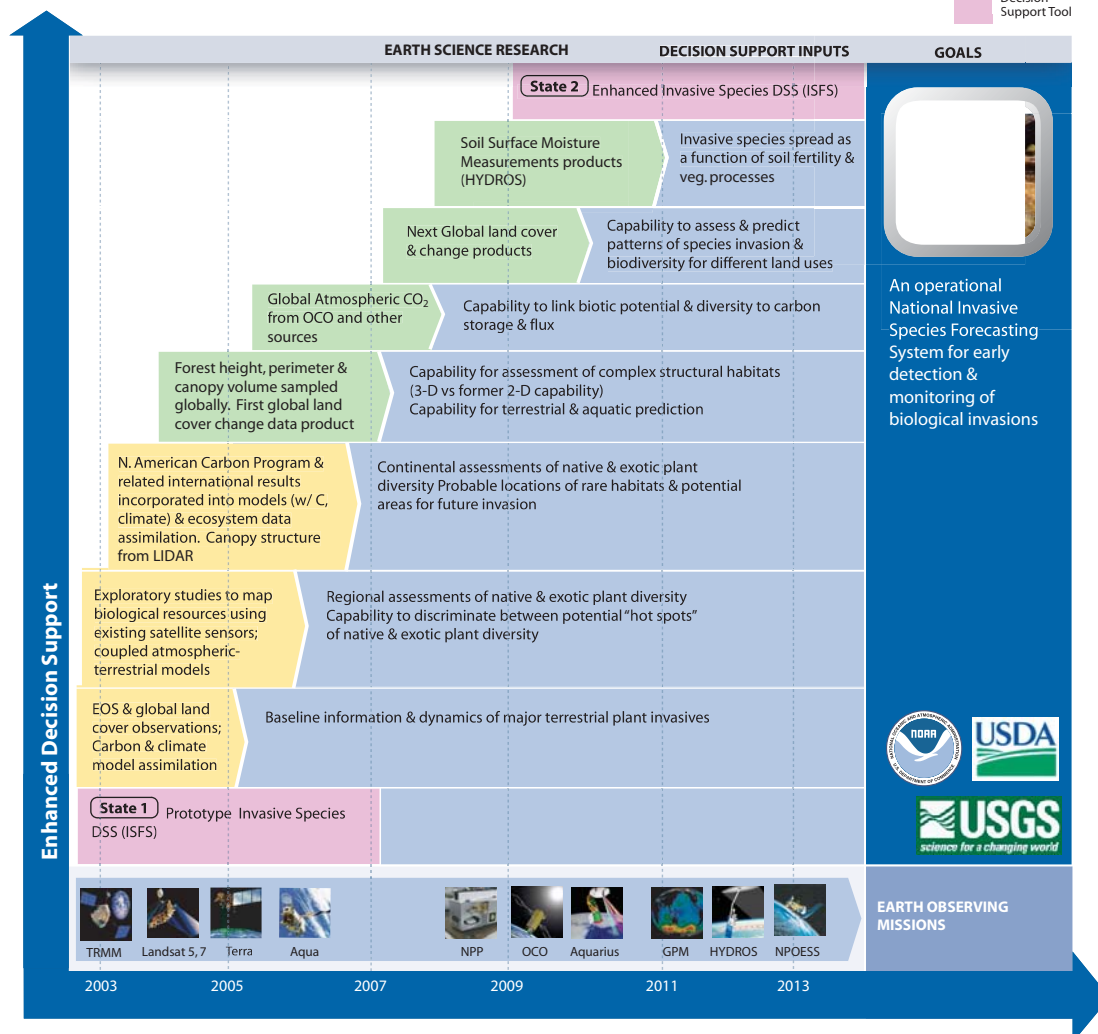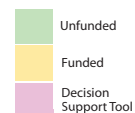
Where we are now

NASA is working through the National Institute of Invasive Species Science, a USGS facility in Ft Collins, to integrate NASA observations and systems engineering in the Invasive Species Forecasting System, a decision support tool of the USGS. The on-line prototype for the ISFS is ready for initial testing this year by individuals and agencies within the Departments of the Interior and Agriculture.

Where we plan to be

In the next decade, the ISFS will evolve as a major decision support tool for invasive species. The initial focus on terrestrial plant species will be supplemented with aquatic plant species and animal species. Applications to human health, ecosystem health and homeland security will be explored. New NASA capabilities (e.g. HYDROS, GPM) will be integrated into the DSS.

2004 — 2012